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ETHNOBOTANICAL STUDY OF USEFUL CLIMBERS/TWINERS OF DISTRICT KOTLI, AZAD JAMMU & KASHMIR

Muhammad Ajaib[1], Zaheer-Ud-Din Khan[1] and Muhammad Faheem Siddiqui[2]

[1]*Department of Botany, GC University Lahore, Pakistan.*
[2]*Laboratory of Dendrochronology and Plant Ecology, Department of Botany, Federal Urdu University of Arts, Science and Technology, Gulshan-e-Iqbal, Karachi, Pakistan.*
email: *majaibchaudhry@yahoo.co; ajaibchaudhry.gcu@gmail.com*

ABSTRACT

Ethnobotanically important plants are used for various resolves in daily life including medicines, food, fodder, vegetables, etc. Medicinal plants are necessary for treatment of various diseases and production of various medicines. For this purpose climbers/twiners are extensively used as medicine. The local people of District, Kotli use 36 climbers/twiners of the vascular plants for medicine, vegetable and fodder. As traditional culture is disappearing the knowledge about the plant wealth is going to be lost.
The information on climber species is obtained while studying the flora of District Kotli, Azad Kahmir. For each plant its family, botanical name, vernacular name, flowering period is given. A total of 36 climber/twiner species belonging to 18 families were recorded for the medicinal, vegetable and fodder. Among all the families family Cucurbitaceae were found to be most abundant having 7 species followed by Convolvulaceae and Papilionaceae with 4 species each.

Key words: Ethnobotany, Climber, Twiners, District Kotli, AJK

INTRODUCTION

Plants are essential for healthier life because they provide us medicines, which are both effective and safe, without any side effect. Plants play a vital role in our lives more than animals mainly due to their extraordinary array of diverse class of biochemicals with a variety of biological activities (Cotton, 1996; Buckingham, 1999).

Ethnobotanical information on medicinal plants and their uses by indigenous cultures is useful not only in the conservation of traditional cultures and biodiversity, but also for community health care and drug development. This information is utilized as a guide for drug development under the premise that a plant which has been used by autochthonal people over a long period of time may have an allopathic application (Farnsworth, 1993).

Azad Jammu & Kashmir, Pakistan is ample in plant diversity because of the branched out habitats, such as lakes, rivers, streams, springs, nullahs, hayfields, steep mountain slopes and roads, waste lands, cultivated fields, etc. The present study was accomplished to document the ethnobotanical data on the useful climbers/twiners of District Kotli, that lies in between longitude 73° 6′ to 74° 7′ East and latitude 33° 20′ to 33° 40′ North (Topo sheet No. 43^{G} /15). It is about 700m-1400m above the mean sea level and is bounded on the Eastern side by Occupied Kashmir, Western side by Rawalpindi (Pakistan), Southern side by Mirpur and Northern side by District Poonch. The population is 0.558 million, according to census 1998. Its area is 1862sq.km. The annual rainfall is 1227.91 mm, maximum during July to August, i.e. 306.93 mm and 256.53 mm, respectively, while low during winter. Thus average monthly rainfall is 102.32 mm (Anon., 2006). Humidity is low during the day time as compared to night. January, February, August and September are more humid months than May and June. District Kotli is divided into Kotli, Sehnsa and Nikyal Tehsils.

The ethnobotany of Chikar and allied areas of District Muzaffarabad was investigated by Saghir *et al*., (2001) and 53 plant species belonging to 48 genera of 33 families were found useful mostly as medicinal, fuel, fodder, fruit, timber and vegetables. Similarly, in the present ethnobotanical study, it was noticed that the local inhabitants largely depended upon the local flora for food and health.

The ethnobotanical study on useful shrubs of District, Azad Kashmir was carried out by Ajaib *et al.* (2010) and 38 species of 36 genera belonging to 25 families were found useful in every day life of local denizens as medicinal, fuel, shelter, fodder/forage and in making agricultural tools. Most of the shrubs were noticed having more than one ethnobotanical uses.

MATERIALS AND METHODS

Altimeter, Camera, plant presser, blotters, old newspapers, ropes, hand lens, field book, pencils, GPS was carried during field survey. General information about the climbers/twiners was collected from the local people. About 100 local respondents including both male and female were interviewed. Plant collection and data recording

for local uses of these plants in various localities was done by carrying the collected climbers to the local people. The questions about the indigenous uses of climber plant species were asked in Urdu. Plant specimens collected from the area were dried, pressed and mounted properly. They were identified with the help of Flora of Pakistan Nasir and Ali (1970-1989), Ali and Nasir (1990-1992), Roberts *et al.* (1995) and Ali and Qaiser (1992-2007). The plant specimens were submitted to Dr. Sultan Ahmad Herbarium, GC University, Lahore, Pakistan.

RESULTS

During the present probe based on ethnobotanically useful climbers/twiners plants of District Kotli, Azad Kahmir, a total of 26 species belonging to 16 families were collected interviewed for their local uses peculiarly in medicines. The data collected for various uses of these species is presented in below.

1. Botanical name: *Asparagus capitatus* Baker subsp. *gracilis* Royle
Family: Asparagaceae
Local name: Shah Gandal
Flowering period: March-April
Part used: Whole plant
Local uses: Root and fruit is aphrodisiac, tonic. Shoot is used as vegetable.

2. Botanical name: *Cardiospermum halicacabum* L. var. *microcarpum*
Family: Sapindaceae
Local name: Lataphatkari
Flowering period: Sept.-Dec.
Part used: Whole plant
Local uses: Stem and leaves are used as vegetable. Dried leaves crushed to make tea used for itching of skin. Fresh crushed leaves used as a poultice on swellings. Leaves, seeds and root are used for rheumatism, stiffness of joints and snakebite. Seeds are also useful for nervous disorders.

3. Botanical name: *Cissampelos pariera* L. var. *hirsuta* (DC.) Forman
Family: Menispermaceae
Local name: Batrar
Flowering period: June-September
Part used: Whole plant
Local uses: The whole plant with roots is used for stomach complaints, diarrhea and dropsy. The leaves are applied on wounds and snake-bites.

4. Botanical name: *Clematis graveolens* Lindl.
Family: Ranunculaceae
Local name: Tootal
Flowering period: March-April
Part used: Whole plant
Local uses: The plant extract is used to kill worms in wounds of cattle. It is mixed with *Cuscuta reflexa* to bath children suffering in sever weakness.

5. Botanical name: *Clematis grata* Wall..
Family: Ranunculaceae
Local name: Tootal
Flowering period: April-August
Part used: Whole plant
Local uses: The plant extract is used to kill worms in wounds of cattle.

6. Botanical name: *Convolvulus arvensis* L.
Family: Convolvulaceae
Local name: Laili, Hiranpadi
Flowering period: March-November
Part used: Whole plant
Local uses: It is used as fodder for cattle. The root is purgative and diuretic.

7. Botanical name: *Cryptolepis buchananii* Roemer & Shultes
Family: Asclepiadaceae
Local name: Grnu, Karanta
Flowering period: May-July
Part used: Leaves and latex
Local uses: Latex is applied externally to healup the wounds where as leaves given to cattle as galactagogue.

8. Botanical name: *Cucurbita maxima* Duch. ex Lam.
Family: Cucurbitaceae
Local Name: Kandoli
Flowering period: April-Sept.
Part used: Fruit and Seeds
Local uses: Fruit is edible and used as vegetable. Fruit is massage on irritated and burning skin. Seeds are used as tonic diuretic and anthelmintic.

9. Botanical name: *Cuscuta reflexa* Roxb.
Family: Cuscutaceae
Local name: Neela Dhari
Flowering period: August-Sept.
Part used: Whole plant
Local uses: Its infusion is antilice. It is also used in skin diseases such as anemia and other weaknesses of children.

10. Botanical name: *Diplocyclos palmatus* (L.) C.Jeffrey
Family: Cucurbitiaceae
Flowering period: July-October
Part used: Whole plant
Local uses: Whole plant extract is applied externally for headache. Seeds and fruits are used in dysentery.

11. Botanical name: *Dioscorea bulbifera* L.
Family: Dioscoreaceae
Local name: Gocatti
Flowering period: July-Sept.
Part used: Bulbils
Local uses: Boiled bulbils are eaten for food. Bulbils are also used as birth control pill.

12. Botanical name: *Dioscorea melanophyma* Burkill & Prain
Family: Dioscoreaceae
Local name: Parkhi
Flowering period: August-October
Part used: Leaves and fruit
Local uses: Leaves and fruits are used in eye tumors in cattle.

13. Botanical name: *Ficus sarmentosa* Buch.
Family: Moraceae
Local name: Phowari
Flowering period: May-Sept.
Part used: Bark, fruit and leaves
Local uses: Fruit and leaves are used for hemorrhagic septicemia and arthritis. Bark is useful for ring worms.

14. Botanical name: *Galium aparine* L.
Family: Rubiaceae

Local name: Lahndra
English Name: Catchweed Bedstraw, Cleaverwort, Goose grass
Flowering period: March-May
Part used: Whole plant
Local uses: Plant extract is useful for dropsy, diuretic, urinary bladder and kidney infection. It is also used in cancer and pus blisters.

15. Botanical Name: *Gloriosa superba* L.
Family: Colchicaceae
Local Name: Sanp booti
Flowering period: July-September
Part used: Whole plant
Local uses: It is used as ornamental plant. Tubers used in rheumatism, and sexual stimulant but very small doses because tubers are very toxic and may cause death.

16. Botanical Name: *Hedera nepalensis* K. Koch.
Family: Araliaceae
Local Name: Banjali, Parkhi
Flowering period: October-April
Part used: Whole plant
Local uses: Leaves are useful for diabetes, cathartic and diaphoretic. Berries are purgative and use to cure febrile disorders.

17. Botanical Name: *Helinus lanceolatus* Wall.
Family: Rhamnaceae
Local Name: Haldur
Flowering period: March-April
Part used: Whole plant
Local uses: Plant extract is useful for scabies and skin diseases.

18. Botanical Name: *Hiptage benghalensis* (L.) Kurz
Family: Malpighiaceae
Local Name: Grun, Endra
Flowering period: March-April
Part used: Leaves
Local uses: The leaves and young branches are used for diabetes, rheumatism and skin diseases.

19. Botanical name: *Ipomoea eriocarpa* R.Br.
Family: Convolvulaceae
Local name: Budhi bel.
Flowering period: July-Oct.
Part used: Whole plant
Local uses: The plant powder and extract is used for cancer, eczema and skin disorders.

20. Botanical name: *Ipomoea hederacea* Jacq.
Family: Convolvulaceae
Local name: Neeli bail
Flowering period: July-Oct.
Part used: Whole plant
Local uses: It is used as an ornamental plant. Root is purgative. Dried seeds are toxic, anthelmintic and hallucinogenic. Seed extract is also used to promote menstruation.

21. Botanical name: *Ipomoea pes-tigrids* L.
Family: Convolvulaceae
Local name: Goj Bahrwa
Flowering period: August-October.

Part used: Stem, Leaves and Fruit
Local uses: Stem and leaves are used for eyes and skin disorders. Fruit with persistent calyx is used in impotency.

22. Botanical name: *Loranthus longiflorus* Desr.
Family: Loranthaceae
Local name: Parvikh
Flowering period: Dec.-Febuary
Part used: Leaves
Local uses: Leaves juice is used for diabetes.

23. Botanical name: *Loranthus pulverulentus* Wall.
Family: Loranthaceae
Local name: Parvikh
Flowering period: Dec.-April
Part used: Leaves
Local uses: Leaves juice is used for diabetes.

24. Botanical name: *Luffa acutangula* Roxb. Var. Acutangula
Family: Cucurbitaceae
Local name: Ghia Tori
Flowering period: June-August
Part used: Fruit
Local uses: Tender fruit used as vegetable and a natural remedy for jaundice. Dry fruit is also used as sponge for dish cleaning.

25. Botanical name: *Luffa cylindrica* (L.) Roem.
Family: Cucurbitaceae
Local name: Ghia Tori
Flowering period: May-Oct.
Part used: Fruit
Local uses: Tender fruit used as vegetable. Fruit juice is purgative. Dry fruit is also used as sponge for dish cleaning. Seeds are bitter and used as emetic.

26. Botanical name: *Momordica charantia* L.
Family: Cucurbitaceae
Local name: Karela
Flowering period: May-Sept.
Part used: Fruit
Local uses: Fruit is used as vegetable. Fruit extract is used as blood purifier, carminative, anti-diabetes and also used for diseases of liver and spleen.

27. Botanical name: *Preacitrullus fistulosus* (Stocks) Pangalo
Family: Cucurbitaceae
Local name: Teenda
Flowering period: March-Sept.
Part used: Fruit
Local uses: Tender fruit is used as vegetable. Fruit extract is useful for constipation, digestive disorders, jaundice and liver and diseases.

28. Botanical name: *Pueraria tuberosa* (Roxb. ex Willd.) DC.
Family: Papilionaceae
Local name: Bindhari, Vandhari
Flowering period: March-April
Part used: Tubers

Local uses: Tubers are used for constipation, cough, rheumatism, dysuria, malarial fever and prevent ageing, tonic, diuretic and strong aphrodisiac. In females it is very useful in nursing mothers as it increase milk flow, enlarges breasts and rejuvenates the skin and premature aging.

29. Botanical name: *Rosa brunonii* Lind. (Syn. *Rosa moschata* auct.)
Family: Rosaceae
Local name: Phalwari
Flowering period: April-June
Part used: Root and flowers
Local uses: Root extract is aphrodisiac. Flowers with white rice are used as purgative, anthelmintic and digestive disorders.

30. Botanical name: *Rubia cordifolia* L.
Family: Rubiaceae
Local name: Landra bail
Flowering period: June-Oct.
Part used: Whole plant
Local uses: Plant decoction is useful for amenorrhea, febrifuge and antispasmodic.

31. Botanical name: *Rubus ellipticus* Smith
Family: Rosaceae
Local name: Peela Akhra
Flowering period: Feb.-April
Part used: Whole plant
Local uses: It is usually cultivated as hedge plant. Fruit is edible and its extract is used as tonic.

32. Botanical name: *Tinospora malabarica* Miers (Syn. *Tinospora cordifolia* auct)
Family: Menispermaceae
Local name: Giloe
Flowering period: March-May
Part used: Stem, Leaves and Root
Local uses: Leaves decoction is febrifuge. Stwm and leaves are used for intermittent fever, dysentery, dyspepsia and tonic.

33. Botanical name: *Trichosanthes cucumerina* L. var. *anguina* (L.) Haine
Family: Cucurbitaceae
Local name: Parrol
Flowering period: June-Sept.
Part used: Fruit
Local uses: Tender fruit is used as vegetable. Fruit extract is very useful for jaundice and other liver and digestive disorders.

34. Botanical name: *Vicia bithynica* (L.) L.
Family: Papilionaceae
Local name: Rawari
Flowering period: Feb.-July
Part used: Whole plant
Local uses: It is used as fodder for cattle.

35. Botanical name: *Vicia hirsuta* (L.) S.F.Gray
Family: Papilionaceae
Local name: Rawari
Flowering period: Feb.-July
Part used: Whole plant
Local uses: Fresh plant is served as fodder for cattle.

36. Botanical name: *Vicia sativa* L.
Family: Papilionaceae
Local name: Muttri
Flowering period: July-Sept.
Part used: Whole plant
Local uses: Flowers are diaphoretic and febrifuge. Paste is locally used in eczema. Flowers are useful for epilepsy and nervous disorders.

DISCUSSION

During the present investigation it was found that almost all the species of climbers/twiners recorded for their ethnobotanical uses were found medicinally important. This data matches with that of Basu (1991) on the medicinal uses of Indian plants as well as Shinwari *et al*., (2006) on the medicinal plants of Pakistan. The medicinal plants are necessary for the preparation of various drugs and curing diseases as stated by Qureshi *et al*., (2007). There are 50,000 registered hakims (herbal healers) in Pakistan (William and Zahoor, 1999). It has been found that traditional herbal medicines are cheaper and often accepted by many people. The younger generation is often adopting the allopathic medicines, thus the traditional knowledge on the medicinal plants and the preparation of medicines from them is only confined to the old people. The treasure of traditional knowledge on the medicinal plants is, therefore under threat (Khan and Khatoon, 2007). A similar study was conducted by Sardar and Khan (2009) in Shakargarh, District Narowal, Pakistan and recorded somewhat similar results. It was also found that most of the palatable climbers were over grazed due to the wild and domestic grazers.

Over utilization not only degraded the local vegetation and natural beauty but also made certain species endangered, for example, *Tinospora malabarica* Miers, *Rubia cordifolia* L., *Helinus lanceolatus* Wall., *Gloriosa superba* L. and *Dioscorea bulbifera* L. were disappearing day by day. Today certain direct crusades such as commercial and subsistence purposes and indirect crusades such as insecure land tenure, poverty and population growth were also influencing the local vegetation. Therefore there is a desperate need for the aegis of this wealth of nature until it vanishes on this planet.

REFERENCE

Ajaib, M., Z. Khan, N. Khan and M. Wahab (2010). Ethnobotanical Studies on useful Shrubs of District Kotli, Azad Jammu & Kashmir, Pakistan. *P. J. Bot*., 42(3):1407-1415.

Ali, S.I. and M. Qaisar (1992-2007). *Flora of Pakistan*. Nos. 194-208. Department of Botany, University of Karachi and National Herbarium, PARC, Islamabad.

Ali, S.I. and Y.J. Nasir (1990-92). *Flora of Pakistan*. No. 191-193. Department of Botany, University of Karachi and National Herbarium, PARC, Islamabad.

Anonymous (2006). Annual rainfall, relative humidity and temperature of district, Kotli, Azad Jammu & Kashmir 2004-2006. Pakistan Metrological Department Jail Road Lahore, Pakistan.

Basu, B.D. (1991). *Indian Medicinal Plants* Vol.1-4. Periodical Experts Book Agency Delhi, India.

Buckingham, J. (1999). *Dictionary of Natural Compounds*. Chapman and Hall, U.K: 14-20. Cotton, C.M. 1996. Ethnobotany: Principals and Applications. John Wiley and Sons Ltd., Chichister, England.

Farnsworth, N.R. (1993). Ethnopharmacology and future drug development: The North American experience. *J. Ethnopharmacol.*, 38: 145-152.

Khan, S. W. and S. Khatoon (2007). Ethnobotanical studies on useful trees and shrubs of Haramosh and Bugrote Valleys, in Gilgit Northern Areas of Pakistan. *Pak. J. Bot.*, 699-710.

Roberts, T.J., Y.J. Nasir and R.A. Rafiq (eds) (1995). *Wild Flowers of Pakistan*. Oxford University Press, Karachi, Pakistan.

Qureshi, R.A., S.A. Gilani and M.A. Ghufran (2007). Ethnobotanical studies of plants of Mianwali District Punjab, Pakistan. *Pak. J. Bot*., 39(7): 2285-2290.

Saghir, I.A., A.A. Awan, S. Majid, M.A. Khan and S.J. Qureshi (2001). Ethnobotanical studies of Chikar and its allied area of District Muzaffarabad. *Online Journal of Biological Sci.*, 1(12): 1165-1170.

Sardar, A.A. and Z. Khan (2009). Ethnomedicinal studies on plant resources of Tehsil Shakargarh, District Narowal, Pakistan. *Pak. J. Bot.*, 41(1):11-18.

Shinwari, Z.K., T. Watanabe, Mehboob-ur-Rehman, and T. Yoshikawa (2006). *A Pictorial Guide to Medicinal Plants of Pakistan*. Kohat University of Science and Technology, Kohat, Pakistan.

William, and A. Zahoor (1999). *Priorities for medicinal Plants Research and Development in Pakistan*. MPPA, New Dalhi, India.

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